

2005  
**The Map Modernization Program**

# **Business Case Plan**

For the  
**State of Utah**



**Department of Public Safety  
Division of Homeland Security  
Office of Emergency Services**

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## FLOOD MAP MODERNIZATION State Business Plan UTAH

### I. **What is Utah's Vision for supporting Multi-Hazard Flood Map Modernization (Map Mod)?**

Utah's vision of supporting the Map Modernization Program is to act as the Cooperating Technical Partner (CTP) and manage the flood hazard mapping activities for the State of Utah. This will involve overseeing the hiring and management of prime engineering contractors, development of timelines and schedules, organizing meetings and promoting meeting and the delivery of final flood mapping products. The Map Modernization Management Support (MMMS) Project Manager will provide a program management structure that motivates partners to share responsibilities and costs and also aligns partner missions to produce quality flood hazard mapping in the State of Utah in a timely manner.

- a) **What are Utah's current mapping efforts?** - Utah's current mapping efforts consist of directing, managing, and supporting the Prime Engineering Contractors with mapping projects. Supporting FEMA's mapping projects, through the coordination of meetings, attending all meetings, resource of information to contractor, resource to community on map status, ordinance updates and technical assistance. Assisting the National Service Provider with their responsibilities and roles.
- b) **How is the flood hazard data currently stored?** - Utah's flood hazard data is mostly on hard copy maps. Salt Lake County, Weber County and portions of Utah County have a DFIRM. Maps have been stored on CD as tiff files, however updates to these CDs are slow and the paper maps are still the most up-to-date.
- c) **What is Utah's current flood hazard mapping status?**  
Utah's flood hazard mapping consists of projects managed by FEMA Region VIII. The FY04 Map Mod money went to studies that were already underway. FY05 funds were dedicated to Tooele County, Washington County, and Moab City. FY06 funds were dedicated to Iron County, Utah County, and Wasatch County. The State of Utah MMMS Project Manager, along with a team of evaluators selected the Prime Engineering Contractors for these projects.

## Utah's Map Modernization Program (Table 2.0)

### \*Priority List May Change Depending on Funding

Rank	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
1st	Cache	Washington	Utah County DFIRM Con.	Morgan	Weber	Duchesne
2nd	Davis	Tooele	Iron County	Uintah	Kane	Grand
3rd		Moab City	Wasatch	Sevier	Emery	Beaver
4th				Sanpete	Millard	Rich
5th				Box Elder	Daggett	Wayne
6th				Carbon		Garfield
7th						San Juan
8th						Piute

The State of Utah is a FEMA participating Cooperating Technical Partner (CTP). The MMMS Project Manager assists the mapping efforts of FEMA Region VIII in communicating with the community and the project engineers to better coordinate and facilitate the sharing of information and meeting arrangements.

d). **What does Utah want to achieve in the Map Mod Program?**

Utah wants and needs more accurate and timely floodplain mapping that is managed by the state. Through the Map Modernization program, the State of Utah can be an effective partner in this goal.

The use of GIS mapping technology is always a priority and an integral part of the mapping process. Our main focus will be on providing new detailed mapping to the many critical areas in this state where approximate flood zones currently exist. Many communities in Utah do not have the capability to view and use digitized floodplain maps, but they are in need of detailed mapping accurately depicting the 100 -year base flood. Utah's goal is to provide the **highest quality possible** in this mapping program where all partners are satisfied with the finished product.

e). **Utah's State Plans** . In 2002, Utah prepared a Map Modernization Implementation Plan (attachment A) for the State outlining Utah's mapping priorities and floodplain mapping needs. This Plan details the types of map upgrades needed by each community in the state and outlines the upgrades needed to reinforce the NFIP goals and purposes. This plan also discusses the cost associated with some of the needed mapping. During a four-year performance period, it is estimated that mapping will exceed \$5 Million dollars.

f). **Selection of Utah Prime Engineering Contractors** . In 2005 the MMMS Project Manager, and four other members evaluated submittals from the Statement of Interest (SOI) that the State of Utah released for Prime Engineering Contractors for the Map Modernization effort. Five contractors were selected. The evaluation and selection process are in accordance with the Utah State Code guidelines for purchasing and procurement. Utah



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IS Project Manager to select Prime Engineering Contractors experience, expertise, availability, and other criteria required for compliance with LEED standards.

## II. What are Utah's Needs and Plan/Strategy (for a 5-Year period)?

The floodplain maps in Utah are some of **the oldest maps in the Country**. Approximately 25% of the maps are 20+ years old. Over 40% of the map panels have never been printed. Around 30% of the state has never been mapped for flood hazards. There are many areas that are seeing **significant development** that do not have accurate floodplain maps or any mapping at all. Utah's average age of Flood Insurance Rate Maps is more than 15 years. In many cases, the older maps reflect outdated flood hazard information that limits their utility for insurance and floodplain management purposes.

The mapping situation in Utah is in need of additional money and attention. Utah is one of the fastest growing states in the Country. Out of America's 100 fastest growing counties **four** of those are in Utah. From 2000 to 2005 Utah's population increased 10.60 percent. Forecasts predict that Utah's population, development, and overall growth will continue at rates higher than the national average. Even with unprecedented growth our communities are still plagued with inaccurate flood mapping. Communities are attempting to regulate development using flood maps that barely show main streets and floodplains that don't exist, and new floodplains that aren't mapped. It is difficult for these local administrators to make wise floodplain management decisions with these archaic tools.

In 2002, Utah developed a **Map Modernization Implementation Plan** for the State (attachment A) detailing Utah's need for new and more accurate flood hazard mapping. Utah will use this plan, as it will be a useful tool in formulating and initiating future flood mapping endeavors. The plan implementation process will receive the highest priority and will allow Utah to effectively mitigate and identify flood hazards statewide. This plan identifies needs and creates a framework to coordinate flood mapping efforts and monitor its progress. The Map Modernization Plan has been updated in 2006.

### (1) What Activities will the Utah MMMS Manage?

Under the Utah MMMS, the program administration and project management for the mapping activities will be coordinated by the MMMS Project Manager with help from the CAP Manager and State Hazard Mitigation Officer. The management activities will include:

- creating and fostering partnerships with other interested state agencies
- studying and producing of digital flood hazard mapping
- hiring of independent review of hydrologic and hydraulic activities
- ensuring the maps meet FEMA technical standards
- overseeing agreements and timelines
- developing and disseminating out reach material
- selection of Prime Engineering Contractors

**(2) How will Utah's mapping program achieve the goals listed in the Multi-Hazard Flood Map Modernization Objectives?**

*(a) (i). maintain a premier data collection and delivery system.*

▫ The State's **Automated Geographic Reference Center (AGRC)** will store and provide access to all maps that are produced under the Map Mod program for the State of Utah. Additional servers may be needed to house and maintain these maps. AGRC will be a partner in this program and take on the responsibilities of being the primary repository of the digital data. AGRC has the program **ARC-IMS** which is an Internet based map storage system. Floodplain delineations will be stored as ArcView layers that will be accessible by the public over the Internet from AGRC. The DFIRM layers prepared by outside contractors will be projected to a geographic coordinate system that is **compatible** with the other base map layers provided by AGRC. Layers can be downloaded from the web page or will be provided on CD by request. This activity will be initialized in year one and continue annually. This will provide easy access by the user community to flood hazard data and other data to support risk management.

▫ Currently AGRC houses many interactive maps and coordinates with many state agencies to compile and store these maps. The groundwork has been done to allow multiple participants to use and contribute data. AGRC has set a system that is **easy to use, flexible and adaptable** allowing for future technological advances and enables the archiving of historical data and efficient data storage and retrieval. Their system will allow accessibility from many applications and users while ensuring information accessible through the system meets national standards with appropriate **security**.

*(ii) Achieve effective program management.*

▫ MMMS Project Manager proposes to have the **maximum level of participation** in this program. He/She will manage all of the mapping activities

for the state. Identified in the **2002 Map Modernization Implementation Plan** (see Attachment A) for the State of Utah, mapping priorities have already been established. Those priorities will be reevaluated and better



unding becomes available and communities wish to the identified mapping activities. The reevaluation of the plan will occur regularly and will better define the program management goals and mapping activities.

- Utah MMMS will be the **lead agency** in the state's efforts to support and participate in FEMA's Map Mod Program.

- Utah MMMS has developed an **approved list of engineering firms** and will use this list to subcontract for assistance in conduct and/ or assisting in the collection of field data, modeling, conducting studies and reviewing studies.

- The MMMS Manager (Utah CAP) will ensure **quality, timeliness** and **delivery** within **pricing constraints**, continuously **monitor** and **track progress** by regularly disseminating **reports**, and provide a **reliable performance management** system.

(iii) *Build and maintain mutually beneficial partnerships.*

- The Utah MMMS will develop a **Flood Mapping Resource Board** to reduce redundancies and maximize the usefulness and efficiencies of partner contributions. This Board will meet regularly to foster **partnerships**, share information, and review mapping data.

- This Board will be comprised of various federal, state, and local agencies interested in floodplains, wetlands, resource coordination, mapping, water resources, etc. These partnerships will achieve **shared outcomes** through mentoring and assistance, ensuring reliable and usable data, accessible for widespread use, and will **reduce redundancies** in all programs involved.

(iv) *Expand and better inform the user community.*

- Utah is committed to providing **enhanced communication** to the user community. Through the development and placement of brochures, newsletters, websites ([www.utah.des.gov/mapmod](http://www.utah.des.gov/mapmod)), and meetings, the community will be better informed of all aspects of floodplain mapping, NFIP regulations, and available products and services.

- The Utah High and Dry **newsletter** will provide map modernization information updates to a wide audience including federal, state, local agencies as well as engineers, contractors and consultants. This newsletter is a committed activity under the CAPSSSE grant agreement plan with FEMA.

- **The Utah Floodplain and Stormwater Management Association** will provide the venue for workshops and technical sessions for the purpose educating partners on the various aspects of floodplain mapping. The conferences held by the UFSMA, will allow for information to be



to local floodplain administrators, contractors, consultants, states, federal agencies and engineers.

- A **webpage** has been designed to update and inform the user community of map studies status, map mod initiatives and state mapping priorities. This webpage will link to the new mapping products (DFI RMs) once they are completed.

**(b). For each program administration and management activity identified, describe your staff capabilities, existing resources, and training needs**

- **Staffing** includes a MMMS Coordinator. DES currently has two GIS Specialists on staff that will assist in the coordination of GIS flood mapping activities. The MMMS Project Manager will oversee this program with assistance from the Cap Manager.
- **Resources** will be developed and maintained through **proactive agency coordination**. Utah has developed partnerships with numerous other state, federal and local agencies that will act as great resources to the Map Mod Program. Below are listed some of the agencies and committees Utah DES will work with in coordination of this program:
  - Division of Water Resources
  - Dept. of Natural Resources
  - Automated Geographic Reference Center
  - Army Corps of Engineers
  - Utah Department of Transportation
  - Association of Governments
  - Resource Development Coordination Committee
  - River Basin Coordination Committee
  - State Hazard Mitigation Team
  - Utah Floodplain and Stormwater Management Association (UFSMA)
  - NRCS

▫**Training**

Training is needed in ARC-GIS and ARC-IMS. FEMA is offering training to the MMMS Coordinators that has been taking place this year and will continue this year. The MMMS Project Manager and CAP Coordinator will take training in program management, MIP, CTP, GIS, NFIP, other FEMA training, and necessary trainings to enhance the capabilities of the Utah Mapping program to be an effective and valuable partner in the mapping process.

**(c). What are the existing shortfalls (staffing or other resources)?**

The Utah **MMMS** is located in the **Office of Emergency Services** and does not have engineering staff available. However, we have access to **engineers** and **hydrologist** through the Department of Natural Resources and private contractors.

A percentage of the funding will be used for administration of the grants. This will vary depending on the funding level.

#### Plans in Utah relate to the Map Mod Objectives?

The **Envision Utah** Public/Private Partnership was formed to guide the development of a broadly and publicly supported Quality Growth Strategy - a vision to protect Utah's environment, economic strength, and quality of life for generations to come. Five years of scenarios analysis, research and public involvement have helped Envision Utah bring the topic of planning and preparing for growth to the forefront of the public mind. The Envision Utah document discusses the NFIP goals and FEMA's Flood Insurance Rate Maps. It also lists strategies for flood-prone areas listing restriction of fill as a primary strategy. Although Envision Utah does not name the Map Mod Program, the program goals are similar to each other in that both programs are **developing urban planning tools for quality growth**. The Map Mod definitely has developed goals to protect structures from recurrent flooding by identifying those that are in floodplains through accurate mapping. As Utah continues to grow and develop in the outlying areas, accurate and timely mapping is a strategy that must be in the forefront.

#### (e). What mapping projects were initiated this year?

This year Iron County, Wasatch County, and Utah County were initiated.

#### (f). What Mapping Projects will be initiated in 2007?

Depending on funding levels, mapping projects will include **Morgan County, Uintah County, Sevier County, Sanpete County, Box Elder** and **Carbon County**. Please refer to table 2.0.

**Cache County** is currently being completed by the National Service Provider (NSP) or Baker. The Utah MMMS Project Manager will continue to assist and help FEMA and the NSP as requested.

**Davis County** is currently being completed the NSP. Additional work is anticipated to be completed this year through FEMA and the NSP. The Utah MMMS Project Manager will continue to assist and help FEMA and the NSP with Cache County as requested.

Stantec Consulting has been working with **Tooele County**. Stantec has encountered some problems with Tooele County due to the County, and communities inaccurate claims of current data. Additional funding may be required for corrective measures. Although some corrective measures will need to be taken it is still possible to avoid going red on the MIP. Utah's MMMS program manager is working with FEMA, and the NSP to find and implement a workable solution to get Tooele back on track.

Bowen Collins and Associates has begun work on **Washington County**. Currently all the deadlines and project management goals are being met.

Bowen Collins and Associates has begun work on Moab City. Currently all the deadlines and project management goals are being met with **Moab City**.



and Associates has begun work on **Iron County**. Currently all the deadlines and project management goals are being met.

Bowen Collins and Associates has begun work on **Wasatch County**. Currently all the deadlines and project management goals are being met.

URS has begun work on **Utah County**. Currently all the deadlines and project management goals are being met.

### (3) **What is Utah's Project Management Plan**

Each planning activity will follow a 12-step process to flood mapping that will improve productivity by reducing the number of hours spent, enabling faster response to special problems, maintaining an accurate and thorough contracting and invoicing history of all study contracts and providing a uniform and timely report of the status of contracts across the state.

#### **1. Selection Process**

Adjusting study priorities may occur due to funding limitations. Once a community is selected then a meeting will occur with the State and the local communities. Discussion of mapping areas and local matches will occur at this initial meeting.

#### **2. Contractor Selection Process**

Contractors will be chosen from the pool of Prime Engineering Contractors that was previously selected. The Prime Engineering Contractor will be selected from the pool based on which contractor is best qualified.

#### **3. Time and Cost Meeting**

Meeting at the community with the State and the contractor who will be doing the study. Purpose of this meeting is to define the scope of work, find available data, and do a preliminary field study. Following this meeting, the cost of the study is negotiated and the contract is awarded.

#### **4. Study Begins**

Tasks are identified and study responsibilities are detailed. Once the data is completed, it is submitted to the locals and State for review. An independent contract engineer (hired by the state) reviews material and reports any special problems.

#### **5. Hydrology review meeting**

The purpose of this meeting between the State and locals is to review the initial hydrology data. This meeting occurs 4-6 months after the study has begun. An independent contract engineer (hired by the state) reviews material and reports any special problems.

#### **6. Intermediate Meetings**

This takes place once the hydraulics draft is completed, approximately 3-4 months after the hydrology review meeting. This meeting is with the communities, contractor, State, Engineer.

## es to Michael Baker Jr. Engineers

The map is reviewed by Michael Baker Jr. Engineers for accuracy

### 8. Final Meetings/ Community Coordination Meeting

Preliminary study is presented to the community. The purpose of this meeting is to answer any questions they may have, as well as to make sure they understand it is the responsibility of the community to verify street names and accuracy of the map in this regard. This meeting occurs one month after Baker has completed their review.

### 9. Public Notice

Notice of where the public can review the preliminary map must be published for two weeks.

### 10. Appeal Process

With specific data that substantiates a change, the preliminary map may be appealed.

### 11. Compliance Period

The community has up to six months to modify their floodplain ordinance to reflect the new map.

### 12. New Map is Printed

Often times the new map can be printed during the compliance period.

There will be other coordination not specified in these 12 steps. Numerous emails, web page postings, budget tracking, filing of special problems reports and other coordination meetings will be held as needed. Since the contractor and project manager will all be in Utah, it will be easier to hold a meeting in a short time frame.

#### ii) Utah's project timelines?

As outlined above, the time frame will vary in accordance to the detail of study needed. Some mapping projects may take longer than others. Special problems may delay the study further. **Funding issues** may also delay study deadlines. The goal is to have detailed studies completed in **36 months**.

#### iii) Resources/Staffing (state, local, federal, contractor)

Resources have been discussed in section **II.2.b**.

Staffing has been discussed in section **II.2.b**.

Maps will be delivered in required digital format under the specs in FEMA 137 Guidelines and Specifications for Flood Hazard Mapping Partners as well as MIP tools other tools will be utilized and adherence to Chapter 7. Deliverables will be tracked and will be submitted in a timely fashion.

**v) Reporting**

Reporting will be completed quarterly on each mapping activity. Reports will be sent to FEMA Region VIII. Updates on the mapping progress will be posted monthly on the state mapping website.

**vi) Quality assurance**

An **independent review** by a hydrologist will assure the quality of the engineering completed for each mapping activity. A resource board may also review the data for correctness.

**III). Performance Goals/Cost and Schedule Measures (tracking)**

1. Each project will have its own needs and reporting requirements will reflect those needs. This is all dependent on the scope of work of the individual project. Each project will be measured on the following four categories:

Baseline  
 Benefits  
 Accomplishments  
 Product

- FEMA will provide a web-based system for tracking and reporting cost, schedule and performance. It will be a requirement of the contractor to supply this information to the State.

**IV). Alternatives/Varying Funding Levels**

**1. Given the following alternative funding levels, describe federal funding, state/locality/partner funding, and performance over a 5-year period:**

a. **Full** - Utah is expecting full funding from FEMA for the Map Mod Program. Any match will be generated at the local level during the scoping coordination meeting. As funding levels fluctuate, projects will be adjusted accordingly.

b. **Medium** . There will be limited mapping projects if the funding is reduced. Mapping projects will be reevaluated and aligned with funding.

c. **Low** . There will be limited mapping projects if the funding is reduced. Mapping projects will be reevaluated and aligned with funding.

ended

There are no state or locally funded mapping activities that do not require Federal funds.

3. **Explain how FEMA funding will fill the shortfalls identified in Section II. FEMA funding is necessary for an effective flood mapping program in Utah.**  
Local flood mapping partners will contribute at a level that is appropriate for their community and according to the amount of Federal dollars that are committed to each project.
4. **Explain how the State/local match, where applicable, will be provided.**
  - The State match is a soft match.
  - The local match will be generated at the local level during the scoping coordination meeting.
  - Communities may offer surveying, and or base mapping as their local match.

## Utah's Map Modernization Program (Table 2.0)

Priorities						
Rank	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
1st	Cache	Washington	Utah County DFIRM Con.	Morgan	Weber	Duchesne
2nd	Davis	Tooele	Iron County	Uintah	Kane	Grand
3rd		Moab City	Wasatch	Sevier	Emery	Beaver
4th				Sanpete	Millard	Rich
5th				Box Elder	Daggett	Wayne
6th				Carbon		Garfield
7th						San Juan
8th						Piute



Maps to go Preliminary (Table 2.2)						
FY 04	FY 05	FY 06	FY 07	FY 08	FY 09	FY 10
Summit	Juab	Washington	Utah County DFIRM	Sevier	Weber	Duchesne
Weber	Salt Lake	Tooele	Iron	Sanpete	Kane	Grand
		Moab City	Wasatch	Box Elder	Emery	Beaver
		Cache	Uintah	Carbon	Millard	Rich
		Davis	Morgan		Daggett	Wayne
						Garfield
						San Juan
						Piute

V). Concerns regarding Map Modernization Program

**4. Additional funding needs to be provided to complete the mapping project.**

As seen above in tables 2.0 and 2.2 Utah has priorities and goals for the map modernization program to succeed along with FEMA's requirements and goals. We have serious concerns that FEMA is not providing adequate funding to complete the projects given the current funding levels. As a CTP we are concerned that FEMA will not be able to provide adequate funding needed to meet our goals. Additional funds will have to be allocated to the CTP program to successfully fund and meet the goals we have set. Utah is dedicated and committed to successfully reaching the Map Modernization goals and objectives. We strongly urge FEMA to increase funding levels in order to meet our goals.

**5. FEMA does not provide basemaping.** Many communities claim their data is correct and accurate; however, their data frequently does not meet FEMA section 7 requirements. Utah is concerned that the communities may not be able to provide adequate basemaps that meet FEMA standards. Additional funding and support from FEMA may be required to bring standards to an adequate level.

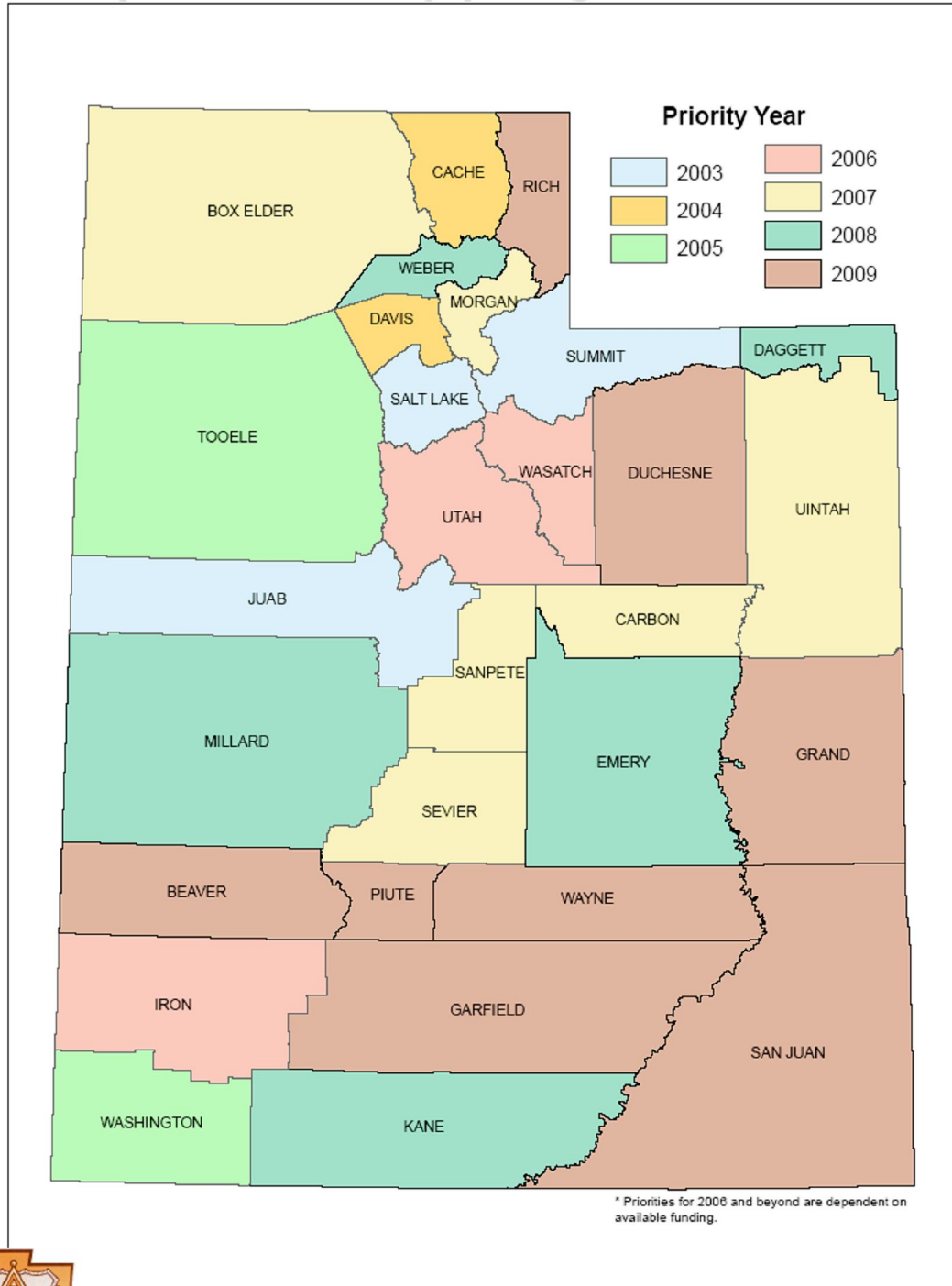


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## Mapping Priorities



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